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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/686,663

10/11/2000

Jay A. Alexander

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02/26/2004

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EXAMINER

WEST, JEFFREY R

ART UNIT

PAPER NUMBER

2857

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/686,663

Applicant(s)

ALEXANDER, JAY A.

Examiner

Jeffrey R. West

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 and 44-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 and 44-65 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The Examiner notes that the Amendment filed January 08, 2004, does not contain an updated listing of the claims but instead contains some claims as presented in the Response filed August 13, 2002 and some claims as presented in the Response filed February 10, 2003. For the purpose of examination, the Examiner has considered the current amendments presented as amendments to the most recently updated listing claims (i.e. the claims as presented in the Response filed February 10, 2003).

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "303" (page 26, lines 17+), "900" (page 42, line 5), "916" (page 42, line 28), "922" (page 43, line 3), and "928" (page 43, line 7). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "1215". A proposed drawing correction, corrected drawings, or

amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of a plurality of informalities. Some of the informalities are as follows:

On page 39, line 10, "The global/local flag is received at block 1225" should be --
-The global/local flag is received at block 1215---.

On page 54, line 16, the "pulse number" is incorrectly labeled "526" instead of
"534" as shown in Figure 5.

On page 54, line 18, the "pulse locator" is incorrectly labeled "606" instead of
"506" as shown in Figure 5.

On page 54, line 22, the "sort index array" is incorrectly labeled "606" instead of
"604" as it is shown in Figure 6.

On page 55, line 16, the "sorted occurrence number" is incorrectly labeled "706"
instead of "708" as it is shown in Figures 7A-C.

On page 55, line 20, the "search index" is labeled "608" while Figure 6 shows
"608" as a subset index of a sort array.

Page 55, lines 26-27, states that a transfer of an index "causes pulse number
field 706C to display an occurrence number of 7" while Figure 7C shows "706C" as
labeling an occurrence number field, not a pulse number field and the number 7

corresponds to a sorted occurrence number field not a pulse number field or an occurrence number field.

On page 55, line 28, the "pulse locator" is incorrectly labeled "606" instead of "506" as shown in Figure 5.

On page 56, lines 4-5, the "pulse number" is incorrectly labeled "526" instead of "534" as shown in Figure 5.

Appropriate correction of these, and any other informalities present in the specification, is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 50, 54, 56, 57, 59, and 60-64 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 50 is considered to be vague and indefinite because it recites, "wherein said subset of pulses" with no previous mention of any "subset of pulses".

Claims 54, 57, 59, 60-62, and 64 are rejected under 35 U.S.C. 112, second paragraph, because they recite, "said database" while there is no previous mention of any "database" in their respective parent claims.

Claims 56 and 63 are rejected under 35 U.S.C. 112, second paragraph, because they incorporate the lack of clarity present in their respective parent claims.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3, 11, 22, 24, and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,222,028 to LaBarre et al.

LaBarre discloses a pulse analysis/management system, including an oscilloscope (column 6, lines 54-58) that obtains a time-varying analog pulse signal (column 3, lines 67-68), digitizes and stores the samples in an acquisition memory (column 7, lines 7-16 and 24-29) and automatically/without operator involvement provides measured characteristics of each of the previously stored plurality of pulses for storage in a searchable data storage array (column 9, lines 44-52) using positive and negative pulse time indications (column 11, lines 33-38). LaBarre also discloses a transition calculator that determines transition signal levels and times at each of one or more transition percentages, wherein each percentage is a percentage of a difference between two signal levels (top and base) having a logical interpretation for comparison (column 9, line 52 to column 10, line 9 and column 12, lines 60-66).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-6, 8-11, 14-17, 19-22, 24-28, 44, 49, 52-57, and 59-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,003,248 to Johnson.

Johnson discloses a probability density histogram display for use is a pulse management system including a digital oscilloscope that obtains an analog time-varying pulse signal, buffers and applies the signal to a sampling bridge that samples the input signal and measures a voltage characteristic of each of the pulses in series before passing the voltage value to a holding circuit and an ADC that digitizes the voltage levels and stores the digitized voltage samples in a memory with each sample uniquely identified by a single digital word identifier (column 3, lines 19-31). Johnson then discloses a means for automatically (without user involvement) using the previously obtained/stored values to form a histogram (column 3, lines 31-37) of a distribution of the number of occurrences that the acquired signal is obtained over a specified time range (column 1, lines 63-68).

Johnson discloses a means for determining one or more modes of the histogram that has a logical interpretation (i.e. digital values stored in the memory indicating the number of occurrences) indicating which signal levels occur most frequently in the histogram (column 4, lines 17-24).

Johnson discloses and a transition calculator/data analyzer for determining/measuring the transition signal levels and times at one or more transition percentages, including base and top levels of the pulses, at user-defined and/or 10%, 50%, and 90% levels (column 1, lines 34-45, column 2, line 42, and column 4, lines 24-30) through a user interface (column 3, lines 13-15). Since these values are statistical data with respect to the overall series of pulses, they are considered to be global. Johnson also discloses that the memory holding the voltage values is searchable in that the values are searched to determine if a particular amplitude meets a predetermined threshold percentage wherein if the predetermined threshold is reached, the amplitude occurrence is displayed (column 4, lines 34-44).

Johnson also discloses using the method to analyze, and store data from, a plurality of input channels each with corresponding graphs on a single display (column 3, lines 51-54). Figure 4 of Johnson discloses a sine wave in a time-domain having two signal levels producing a corresponding histogram with two peaks "200A" (i.e. bimodal). Further, since the invention of Johnson teaches displaying a plurality of data graphs corresponding to a plurality of input sources, wherein the histogram display for each source is optional (abstract) it is considered inherent that the source must provide some type of indication to indicate to the processing system memory that the histogram is to be calculated and displayed. Johnson also discloses displaying the results of the predetermined and operator defined statistical mode,

probability value, and percentage measurements (i.e. operator defined distal and proximal percentage levels) (column 2, line 42 and column 4, lines 17-44).

With respect to claim 17, the limitation requiring that the acquired signal be an alternative mark inversion communication signal that transitions between three signal values, is considered to be an intended use limitation. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In the instant case, the structure of Johnson is capable of analyzing an alternative mark inversion communication input signal. Therefore, as understood by one having ordinary skill in the art, and admitted by Applicant on page 27, lines 29-30, the mode finder of Johnson would identify all the modes of the histogram corresponding to the acquired signal, such as three modes for an alternative mark inversions signal. Further, it is considered well known that that an alternate mark inversion signal transitions between three signal values (see the supplied definition AMI).

With respect to claims 52 and 57, Johnson also discloses storing the pulse data as a single digital word data unit in a buffer/database/array (column 3, lines 38-50), having use in implementing oscilloscope applications, wherein the single data unit uniquely identifies each pulse of the acquired signal, the measured amplitude of the pulse, as well as the corresponding time of occurrence with respect to the other

pulses indicating the time corresponding to when a (rising-edge) trigger event caused the storage of the signal (column 5, lines 21-30).

With respect to claims 60-62 and 64, the pulse data and digital word identifiers are automatically stored in a sequential order of occurrence in the buffer in response to the initial sampling and conversion of the input signal (column 3, lines 38-50).

As noted above, the invention of Johnson teaches all the features of the claimed invention except for first storing the sampled data in an acquisition memory before performing pulse measurements for storage in a second memory.

Although the invention of Johnson doesn't specifically disclose first storing samples of the input signal in an acquisition memory and then measuring the voltage levels of the samples for storage in a subsequent searchable memory, this feature is not considered to make the claimed invention patentable over the prior art. First, the invention of Johnson does supply the input signal to buffering and holding circuitry. Secondly, the invention of Johnson does disclose a functionally equivalent method for forming a histogram based upon a plurality of previously-acquired pulse measurements thereby allowing the formation of a histogram that provides the number of occurrences of each of a plurality of pulse amplitudes obtained over a time-interval. Thirdly, while the invention of Johnson teaches initial sampling and pulse voltage measurement in one processing structure rather than separate structures, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide this processing step using separate structures (i.e. sampling the input data for storage in a first acquisition memory,

followed by measuring the voltage values of the pulse samples for storage in a second searchable memory) since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art (see *Nerwin v. Erlichman*, 168 USPQ 177, 179).

11. Claims 7, 23, 29, 45-48, 51, and 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson in view of U.S. Patent No. 3,656,060 to Bauernfeind et al.

As noted above, the invention of Johnson teaches all the features of the claimed invention except for specifying that the type of pulses (i.e. positive or negative) be inputted before processing.

Bauernfeind teaches a time interval measuring and accumulating device, such as an oscilloscope (column 1, lines 7-9), wherein the user of the oscilloscope specifies the input pulses as either positive or negative pulses before pulse processing occurs (column 2, lines 45-47).

It would have been obvious to one having ordinary skill in the art to modify the invention of Johnson to include specifying that the type pulse (i.e. positive or negative) be inputted before processing because Johnson does teach sampling the input data based upon a rising edge of each pulse of the sample clock, and Bauernfeind suggests that the combination would have insured correct counting of a plurality of pulses, such as counting the occurrences of pulses for use in the histogram of Johnson, by defining the initialization of the count to occur on the

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leading or trailing edge as required, as well as allowed for proper triggering and detection of the pulses as known in the art (column 1, lines 30-60).

12. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson in view of U.S. Patent No. 4,721,958 to Jenkin.

As noted above, the invention of Johnson teaches many of the features of the claimed invention including storing, in memory, pulse data with corresponding amplitudes and a number of occurrences of each signal obtained in order to form a histogram, but does not specify that the data be stored in a table.

Jenkin teaches a real-time pulse processor including a counter for counting the occurrences of a particular pulse amplitude (column 16, line 58 to column 17, line 20) and stores the number of occurrences in a table to create a corresponding histogram (column 17, lines 21-26).

It would have been obvious to one having ordinary skill in the art to modify the invention of Johnson to include specifying that the pulse data be stored in a table, as taught by Jenkin, because the combination would have provided a method, functionally equivalent to the buffer method of Johnson for storing the pulse data using a easily accessible and organized structure as is well-known in the art.

13. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson in view of U.S. Patent No. 5,410,617 to Kidd et al.

As noted above, the invention of Johnson teaches all the features of the claimed invention except for including a smoothing function to identify any of the one or more modes of the histogram.

Kidd teaches a method for adaptively thresholding grayscale image data by obtaining the image data and mapping the data in a histogram, using a look-up table, and incorporating a smoothing function (column 8, lines 37-54) to find peaks in the histogram (column 9, lines 13-15).

It would have been obvious to one having ordinary skill in the art to modify the invention of Johnson to include a smoothing function to identify any of the one or more modes of the histogram, as taught by Kidd, because Johnson does teach that the peaks of the histogram correspond to the modes of the histogram and Kidd suggests that the combination would have provided better peak/mode detection by removing very small peaks and rapid excursions in the histogram (column 8, lines 64-65).

Response to Arguments

14. Applicant's arguments, filed January 08, 2004, have been fully considered but they are not persuasive.

With respect to the drawing objections, the Applicant indicates that "all reference numerals noted by the Examiner as not being found in the Figures are indeed in the informal drawings filed with the application." The Examiner maintains that reference

numbers "303", "900", "916", "922", and "928" are not in the drawings filed August 19, 2002.

Page 26, lines 17+ of the specification, for example, refers to a pulse delineator as "303". Figure 3 does contain a pulse delineator component, but there is no corresponding label. Similar problems are present with respect to Figure 9.

Applicant's proposed drawing corrections filed on February 10, 2003, only corrected Figures 1, 5, 7A-C, 9B, and 12.

Also, in Applicants most recent amendment filed January 08, 2004, page 39, line 10 was amended to add reference number "1225" instead of the required "1215".

With respect to the specification objections, the Examiner indicated that the list of objections was not a complete list and requests that Applicant correct the newly noted informalities as well as any further informalities present in the remainder of the specification.

With respect to the 35 U.S.C. 112, second paragraph, rejections, Applicant indicated that "claims 54, 57, 59, 60-62, and 64 do not recite the term 'database' as alleged by the Examiner. Rather, the claims recite 'data structure' for which antecedent basis can be found in claim 1." The Examiner asserts that in an amendment filed February 10, 2003, Applicant amended claims 54, 57, 59, 60-62, and 64 to include reference to "said database"/ "said pulse database." The copy of the claims currently submitted by Applicant contains a combination of claims

presented in a response filed August 13, 2002, and claims presented in a response filed February 10, 2003. For example, claim 1 included in this response contains limitations for "a searchable data structure", an amendment made February 10, 2003, while claim 25 included in this response does not reflect such an addition and still contains a limitation for "an accessible data structure".

Applicant has also not responded to the rejection of claim 50 for reciting, "wherein said subset of pulses" with no previous mention of any "subset of pulses."

With respect to the 35 U.S.C. 102 and 103 rejections, Applicant argues that "[n]either LaBarre, Johnson or the other art of record disclose teach or suggest storing the results of pulse measurement(s) (referred to as pulse characteristics) in a searchable data structure as recited in Applicant's independent claims."

The Examiner maintains that LaBarre discloses providing "measured characteristics of each of the previously stored plurality of pulses for storage in a searchable data storage array (column 9, lines 44-52)". Applicant has not indicated whether or not the interpretation of a storage array as being searchable is being challenged, however, to further prosecution, the Examiner hereby supplies U.S. Patent No. 6,018,706 to Huang et al. and U.S. Patent No. 5,956,336 to Loschke et al. as support for asserting that a storage array is searchable (see citation of pertinent art below).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent No. 6,018,706 to Huang et al. teaches a pitch determiner for a speech analyzer including a searchable storage array (column 12, lines 4-5).

U.S. Patent No. 5,956,336 to Loschke et al. teaches an apparatus and method for a concurrent search content addressable memory circuit including a searchable storage array (abstract).

<http://www.erg.abdn.ac.uk/users/gorry/course/phy-pages/ami.html> provides the definition of "alternate mark inversion"

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. West whose telephone number is (703)308-1309. The examiner can normally be reached on Monday through Friday, 8:00-4:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703)308-1677. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7382 for regular communications and (703)308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

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jr
February 5, 2004


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